X.7. SUMMARY EXERCISES

38. Name the following molecules.

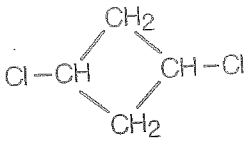
(a) $CH_3CHCH_2CH_2CH_3$ (F on the second carbon)

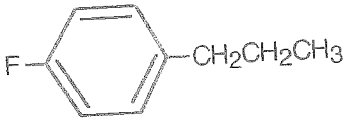
(b) $CH_3CH_2CH{=}CCH_2CH_3$ (Cl on the second carbon)

(c) $I{-}CH_2C{\equiv}CCH_2{-}I$

(d) $HCOOCH_2CH_2CH_2CH_2CH_3$

(e) $CH_3CH_2CH_2$ CH_2CH_3 / $CH_3CCH_2CCH_3$ / CH_3 Br

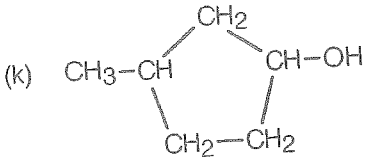
(f) 

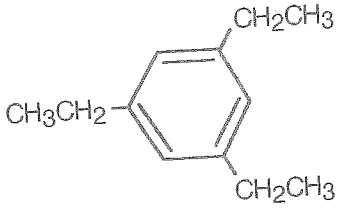
(g) 

(h) $CH_3CH_2CHCH_3$ (CH_3 on the second carbon) / $CH_2CH_2CH_2CH$ (CH_3 on the last carbon)

(i) $Cl{-}CH_2CHC{\equiv}CCH_2{-}I$ (Br on the second carbon)

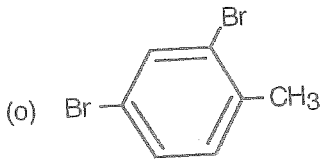
(j) $I{-}CH_2CH_2CHCH_3$ (OH on the second carbon)

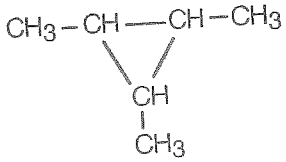
(k) 

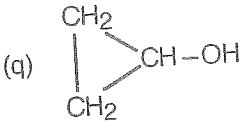
(l) 

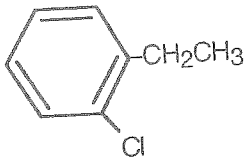
(m) $Br{-}CH_2CH{=}CH_2$

(n) $CH_3COOCH_2CH_2CH_2CH_2CH_3$

(o) 

(p) 

(q) 

(r) 

39. Draw the following molecules.

(a) 1,4,4–trifluoro–2–pentanol
(b) 4–chloro–2–hexyne
(c) ethyl pentanoate
(d) 3,4,5,6–tetramethylnonane
(e) 3–octyne
(f) 1,3–diethylbenzene
(g) 1,3–dibromo–3–hexene
(h) 3,5–diethyl–4,4–dimethylheptane
(i) 2,3–dichloro–2–butene
(j) methyl octanoate
(k) 3,3–diiodo–4–ethyl–2–methyl–1–hexene
(l) cyclooctene
(m) 2–methyl–3–heptyne
(n) 3–methyl–1–cyclobutanol
(o) 1–ethyl–3–propylbenzene
(p) cyclohexyne
(q) 2–methyl–2–butanol
(r) 2,2,3,3–tetrabromobutane

40. A hydrocarbon has the formula C_NH_{2N-2}. Which of the following are possible?
    (a) The compound is branched but has no multiple bonds or cyclic groups.
    (b) The compound has a single double bond.
    (c) The compound has a single triple bond.
    (d) The compound has a single cyclic group.
    (e) The compound has two double bonds.
    (f) The compound has two triple bonds.
    (g) The compound has two cyclic groups.
    (h) The compound has a double bond and a triple bond.
    (i) The compound has a double bond and a single cyclic group.
    (j) The compound has a cyclic group and a triple bond.

41. Draw and name the 9 isomers of C_5H_{10}. (Hint: think what you were doing in the previous exercise.)

42. What class of organic compounds
    (a) can neutralize bases?
    (b) often smell "fishy"?
    (c) can be prepared by combining an acid and an alcohol?
    (d) form waxes?
    (e) can form polypeptides?
    (f) have fruity odours?

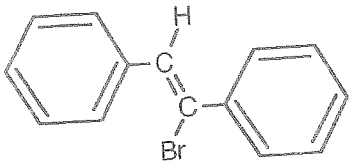
43. Draw the following cis and trans isomers.
    (a) trans–3,4–dichloro–3–hexene
    (b) trans–2–octene
    (c) cis–2,3–dibromo–2–butene
    (d) trans–1,1,1–trifluoro–2–pentene
    (e) cis–1,1,1,7,7,7–hexachloro–3–heptene
    (f) cis–2–nonene

44. Circle the functional groups in each of the following molecules and label each group as one of:
    DOU = double bond, TRI = triple bond, ARO = aromatic ring, HAL = halide,
    ALC = alcohol, ALD = aldehyde, KET = ketone, ETH = ether,
    AMN = amine, AMD = amide, CAR = carboxylic acid, EST = ester.

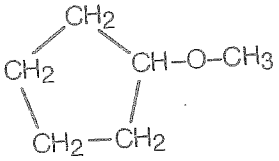
(a) $F_3CCOOCH_3$

(b) $CH_3COCH_2CH_2OH$

(c)



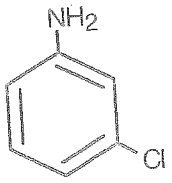
(d)



(e) $CH_3C{=}CHCHC{\equiv}CH$ (with CH_3 and CH_3)

(f) $H_2NCOCH_2CHCH_2CONH_2$ (NH_2)

(g)



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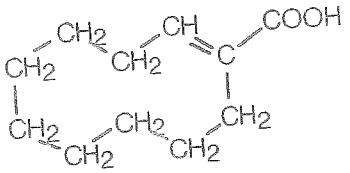
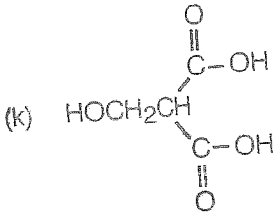


(i) $CH_3CHCH_2{-}O{-}CH_3$ (OH)

(j) $H_2NCOCH_2CHC{\equiv}CCHCHO$ (Cl, Cl)

(k)



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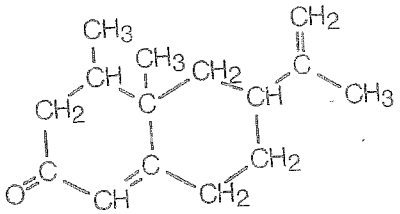
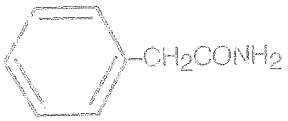
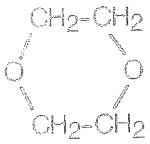
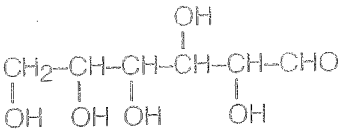
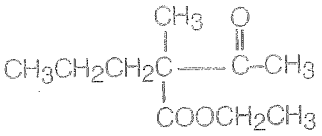
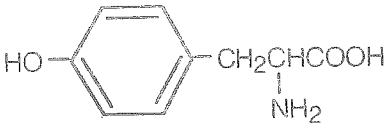


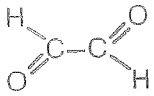
(m) 

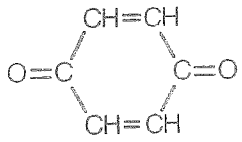
(n) 

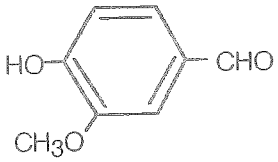
(o) 

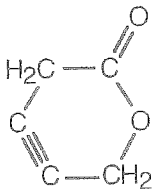
(p) 

(q) 

(r) 

(s) 

(t) 

(u) 

(v)